Scientific
Research
Publishing

A Descriptive Cross-Sectional Study to Assess the Perception and Knowledge of Staff Nurses regarding Physical Restrains

Imad Fashafsheh[1,2*], Salwa Mohamed[1,3], Ahmad Ayed[2], Deyaaldeen ALRababah[4]

[1]Nursing Department, University of Bisha, Bisha, Saudi Arabia
[2]Nursing College, Arab American University, Jenin, Palestine
[3]Nursing College, Fayoum University, Fayoum, Egypt
[4]Alfarabi Colleges of Dentistry and Nursing, Riyadh, Saudi Arabia
Email: *fashafsheh@gmail.com

Abstract

Purpose: The purpose of this study was to examine the perceptions and knowledge regarding physical restraint used among registered nurses (RNs) and nursing assistants (NAs). **Method and Sample**: A descriptive cross-sectional design was used. A convenient sample was recruited from nursing staff from Palestinian and Saudi Hospitals. Perceptions of Restraint Use Questionnaire (PRUQ) were used [1]. **Results**: A total of 144 nursing staffs were included. Physical restraint use was perceived as more important in some circumstances than others. In the critical care unit/ICU, the most important perceived reason for physical restraint use was protecting from falling out of bed and preventing removing dressing. There were significant differences of overall score for the PRUQ among all nursing staff according to hospital, t (142) = 8.74, P = 0.001. The mean of Saudi Arabia hospitals group (M = 4.56) was higher than the mean of Palestinian hospital group (M = 3.67). At the same time, there were significant differences of overall score for the PRUQ among all nursing staff according to specialized education in geriatrics, t (40) = 3.60, P = 0.001. The mean of no specialized education in geriatrics group (M = 4.13) was higher than the mean of yes specialized education in geriatrics group (M = 3.69). **Conclusion and Implications**: Nursing staff showed positive attitudes towards restrains application with difference between Palestinian and Saudi Arabian nurses. Proper implementation and good awareness of the complications are prerequisite for application of physical restrains for patients.

Keywords

Perception, Knowledge, Nursing Staff, Physical Restraints

1. Introduction

Physical restraints is using any method or equipment attached to the body of a person to limit his movement or restrict it [2]; the most common equipment or devices are dressing and gauze, side rails, upper and lower limbs restraints, wrist restraints, or multi of them [3] [4] [5]. The Center for Medicare and Medicaid Services (CMS) defines a restraint as any manual method, physical or mechanical device, material or equipment immobilizing or decreasing the ability of a patient to move arms, legs, body or head freely in all hospital settings [6].

Nurses as well-known are usually the primary care givers for patients; they are usually the ones who take the decision of the need to apply physical restraints or not. Their perception, knowledge, practice, and attitude about physical restraints can affect the health of their restrained patients, and reduce the percentage of complications among them [7].

Prevention of falling of self-harm and removal of medical devices may be reasons for restraint [8]. But at the same time strangulation, muscle loss, pressure ulcers, incontinence, contractures, cognitive and functional impairment, agitated behaviors, psychological distress and death have been reported in hospital settings from physical restraint use [9].

Nurses perceived physical restraints purposes in different ways: the majority of 785 Spanish nurses perceived them as a method for patients safety like preventing fall from bed or chair or avoiding medical devices interference, while only some of them perceived them as a way to prevent patients from taking things from others, preventing them bothering others, or as substituting for staff observation [10].

Nurses in ICU perceived physical restraints as a method to prevent tubes disconnection. Preventing falling from bed could manage confusion, agitation, or impaired psychology, while the lowest reported was prevent falling from chair. They didn't think that nurses needed to stop using of physical restraints [4].

One systematic review concluded that fallings were prevented as the major rational for using physical restraints [10]. But some nurses feel gilt when using restrains [11].

Nurses' knowledge of physical restraints and how to apply them were found to be poor. 100% of nurses reported had inadequate knowledge of wrist and legs restraints [7]. Another study reported lack of knowledge regarding alternatives of physical restraints. 71% of the nurses agree that there are no alternatives for physical restraint, and [12].

Physical restrains still one of important topics discussed in health care setting specially hospitals. More and more debates arise in the literature regarding using circumstances that allow nurses to use restraints especially in acute care units [13].

Some deaths caused by restraints were results from nurses' lack of continuous observation for those patients who died from strangulation, chest compression, or dangling in head down position [14].

Nurses are the primary health care providers who take the decision of applying physical restrains of their patients. From our experiences and comprehensive review of literature, nurses in hospital deal with this issue as easy to apply as far as they don't have the time to observe or to teach or even to be at the bed side of the patient, and also there is lack of knowledge about the serious complications that can be caused to their patients. So the purpose of this study is to examine the perceptions and knowledge of nurses regarding physical restraints.

2. Methodology

2.1. Study Purpose

The purpose of this study is to examine perception and knowledge of nurses regarding the use of physical restraints.

2.2. Study Design

A cross-sectional descriptive design was used in this study. Data collection takes about two months from May to July 2017.

2.3. Sample and Setting

A convenience sample of (N = 144) nurses was selected from 3 hospitals in Palestine and 3 hospitals in Riyadh City, Saudi Arabia, all are general hospital with intensive care units and medical surgical wards including some neuro patients orthopedic patients, old age patients and pediatrics patients (from 8 to 16 years old). **Inclusion criteria:** All staff nurses working with patients, Nursing assistance (Diploma or Practical) and Nursing managers with at least 6 months experience.

2.4. Data Collection and Instruments

A Self administrated questionnaire with covering letter explain the aim of the research was used to examine the knowledge and perception of nurses regarding the use of physical restraints, contain two parts: the first is general data, and the second is "Perceptions of Restraint Use Questionnaire (PRUQ)", it was11 questions as 5 Likert scale (1 = not at all important, 2 = Not important, 3 = Somewhat important, 4 = Important and 5 = most important) and one short notes question, developed by University of Pennsylvania School of Nursing 1986, 1990 Evans and Strumpf.

The questionnaire was distributed by hand by the researchers to the participants and collected the second day during working shifts.

The questionnaire is already tested for its validity and reliability by the authors.

2.5. Ethical Concerns

Participants in the study were informed to insure consent form, and not to write their personal information and names. Possible harms, benefits, and the right to

leave the study were explained. Approvals from participated hospitals were got after sending a formal letter from the corresponding researcher to the head or committees responsible in these hospitals.

2.6. Data Analysis

SPSS version 20.0 was used to analyze data, descriptive analysis was used to analyze demographic data, and t test statistics were used to assess nurse's perception and knowledge of physical restraints.

3. Results

There were 144 participants out of a total possible number of 200; thus the response rate was 72%. Fifty percent of the sample was staff nurses, the practical nurses sample composed 41%, and nurse managers were 9% of the total population. The subjects had been in their nursing role between 1 and 36 years with average 6.53 years; 56.3% were female. Thirty-nine percent work in ICU or critical care unit. Around fourteen percent reported being enrolled in previous education program see in Table 1.

Table 1. Participants background data (N = 144).

Item:	All nurses		Practical nurse		Staff nurse		Nurse manager	
	N	%	N	%	N	%	N	%
	144	100.0	59	41.0	72	50.0	13	9.0
Gender:								
• Male	63	43.8	23	39.0	31	43.1	9	30.8
• Female	81	56.3	36	61.0	41	56.9	4	69.2
• Total	144	100.0	59	100.0	72	100.0	13	100.0
Age:								
• Mean ± SD	29.80 ± 8.63		29.63 ± 10.71		28.03 ± 3.35		39.85 ± 11.77	
• Range (years)	(20 - 60)		(20 - 60)		(23 - 39)		(26 - 54)	
Area working:								
• Medical	38	26.4	15	25.4	23	31.9	0	00.0
• Surgical	36	25.0	19	32.2	15	20.8	2	15.4
• ICU/critical care	56	38.9	19	32.2	28	38.9	9	69.2
• Other	14	9.7	6	10.2	6	8.3	2	15.4
• Total	144	100.0	59	100.0	72	100.0	13	100.0
Years of clinical experience:								
• Mean ± SD	6.53 ± 8.73		7.97 ± 9.68		3.18 ± 3.14		18.54 ± 12.81	
• Range (years)	(1 - 36)		(1 - 32)		(1 - 19)		(4 - 36)	
Previous education about restrains:								
• Yes	20	13.9	16	27.1	3	4.2	1	7.7
• No	124	86.1	43	72.9	69	95.8	12	92.3
• Total	144	100.0	59	100.0	72	100.0	13	100.0

Figure 1 and Figure 2: The two figures show that distribution of nurses regarding hospital types, mostly sample were practical nurse (59%) from Palestinian while 63% were staff nurse from Saudi Arabia Hospital.

Perception of restraint:

The mean overall score for the PRUQ among all nursing staff was 4.1out of a possible 5.0. The mean score among Practical Nurses were 3.68; the mean score for staff nurses were 4.44; and the mean score for nurse managers were 3.78. Examining of the scores indicates that physical restraint use was perceived as more important in some circumstances than others. The mean ranking order for item area is given in Table 2.

Staffs from 4 units were represented in the sample. Specialty units were separated out because of the national prevalence data revealing higher rates among critically ill patients. Mean ranking orders separated by unit were similar as follows:

Intensive care units/Critical care department, N = 56 (38.9%); and medical unit, N = 38(26.4%); surgical units, N = 36 (25.4%); and other units, N = 14(9.7%). In the critical care unit/ICU, the most important perceived reason for physical restraint use was protecting from falling out of bed and Prevent removing dressing (4.30). At the same time preventing taking from others was the least important (3.00). The mean ranking order for Critical care/ICU area is given in Table 3.
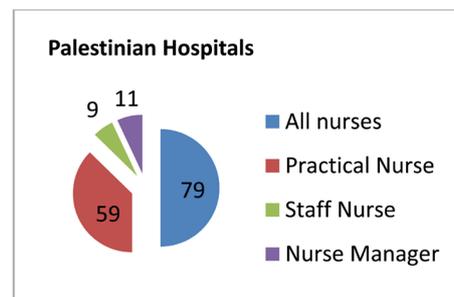

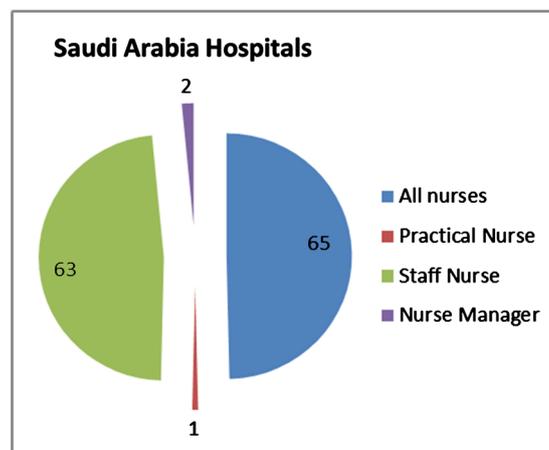**Figure 1.** Palestinian distribution of nurses regarding hospital types.

Figure 2. Saudi Arabia distribution of nurses regarding hospital types.

Table 2. Nursing staff ranking of importance perceived reason for physical restrains (N = 144).

Item	All Mean (SD)
Prevent removing dressing	4.51 (0.84)
Protecting from unsafe ambulation	4.47 (0.93)
Protecting from falling out of bed	4.41 (1.00)
Prevent pulling out catheters	4.35 (0.96)
Preventing breaking open sutures	4.28 (1.11)
Prevent pulling IV	4.28 (1.09)
Prevent pulling feeding tube	4.23 (1.02)
Preventing from dangerous places/supplies	4.19 (1.02)
Protecting from falling out of chair	4.17 (1.19)
Managing agitation	4.10 (1.01)
Protecting staff from combativeness	3.99 (1.15)
Providing quiet time or rest	3.94 (1.26)
Providing safety in impaired judgment	3.94 (1.32)
Prevent wandering	3.85 (1.23)
Keeping from bothering others	3.74 (1.23)
Substituting for staff observation	3.42 (1.35)
Preventing taking from others	3.32 (1.36)

Table 3. Critical care unit/ICU Ranking of Importance perceived reason for physical restrains (N = 144).

Item	All Mean (SD)
Protecting from falling out of bed	4.30 (1.06)
Prevent removing dressing	4.30 (1.01)
Protecting from unsafe ambulation	4.23 (1.03)
Managing agitation	4.18 (1.08)
Prevent pulling out catheters	4.16 (1.06)
Prevent pulling IV	4.04 (1.28)
Prevent pulling feeding tube	4.02 (1.18)
Preventing breaking open sutures	3.96 (1.39)
Protecting from falling out of chair	3.93 (1.35)
Preventing from dangerous places/supplies	3.84 (1.25)
Providing quiet time or rest	3.66 (1.52)
Protecting staff from combativeness	3.66 (1.42)
Prevent wandering	3.61 (1.36)
Providing safety in impaired judgment	3.52 (1.51)
Keeping from bothering others	3.50 (1.28)
Substituting for staff observation	3.12 (1.51)
Preventing taking from others	3.00 (1.33)

Perception of restraint between nurses:

To assess whether overall score for the PRUQ among all nursing staff was affected by sex, experience, specialized education in geriatrics, and hospital. An independent sample t test was performed. There were significant differences of overall score for the PRUQ among all nursing staff according to hospital, t (142) = 8.74, P = 0.001. The mean of Saudi Arabia hospitals group (M = 4.56) was higher than the mean of Palestinian hospital group (M = 3.67). At the same time, there were significant differences of overall score for the PRUQ among all nursing staff according to specialized education in geriatrics, t (40) = 3.60, P = 0.001. The mean of no specialized education in geriatrics group (M = 4.13) was higher than the mean of yes specialized education in geriatrics group (M = 3.69). However, there were no significant differences of overall score for the PRUQ among all nursing staff according to sex, t (142) = 0.66, P = 0.505 as seen in Table 4.

Table 5 showed that a Pearson's correlation coefficient was performed to assess the relationship between PRUQ among all nursing staff and age, and with experience. There was a small positive correlation between PRUQ among all nursing staff and age (r = 0.04, n = 144, P = 0.631). At the same time, there was a small positive correlation between PRUQ among all nursing staff and experience (r = 0.06, n = 144, P = 0.476).

4. Discussion

A majority of the sample were staff nurses (50%) while 9% of the participants were nursing managers (9%). Compatible sample characteristics were in one study in Dutch hospitals. A majority of the sample were nurses (81%), while managers were about 5% [5], and in the study of [3].

Table 4. Difference between Palestinian hospital and Saudi Arabia hospitals scores mean (N = 144).

Item		N	M	t	p
Sex	Male	63	82.35	0.66	0.505
	Female	81	80.64		
Hospital	Palestinian hospitals	79	3.6672	8.74	0.001
	Saudi Arabia hospitals	65	4.5584		
Previous health education regarding restrains	Yes	20	3.69	3.60	0.001
	No	124	4.13		

Table 5. Relation between total PRUQ measures and their socio-demographic characteristics.

	Participants	
Variables	R	P
Age	0.04	0.631
Experience	0.06	0.476

Results of this study showed that 56% of the participants were females and 44% were males, while in another study females represented almost all the sample. In the study of [4] 99% of the sample were females, while in another study in Malaysia 95% of the participants were females [12], and 90% in one study in Spain [10]. In Germany, 81% of one study sample were females [5]. The sample was balanced between male and female which might reflect more represented results.

The mean of years of experiences among participants was 6.53 years close to the results of one study conducted in China m = 6.29 [4], while in one study in Malaysia it was 4 years or less [12]. Even in Egypt the majority (64%) of one study' participants' experiences were less than 5 years [3]. In contrast it was about 18.6 years in another study in Germany [5].

Results of this study showed that the mean overall score for the PRUQ among all nursing staff was (m = 4.1) out of a possible 5.0. It was (m = 4.44) for staff nurses, and (m = 3.68) for assistant nurses. In contrast the results of one study in Spain used the same questionnaire which showed total score (m = 3.47). The mean score of staff nurses was (m = 3.0), while nursing assistant score was (m = 3.59) [10]. This means that Spanish nurses have better perception and knowledge of physical restrains than our nurses.

Regarding general wards nurses perception of the purpose of using physical restraints, "prevent patients removing dressing" was perceived as the most important purpose for using restraints (m = 4.51), and "protecting from falling out of bed" (m = 4.41) was perceived as the second important purpose. In one study in Taiwan (China) 59% of the patients were restrained to prevent falls, and in Spain the highest mean for restraints purpose was for preventing falls out of bed (m = 4.36) which was close to the results of the current study, while preventing removing dressing mean (m = 3.61) was less than mean of this study (m = 4.51) [15].

In contrast, in another study different purposes were perceived to be more important. In one study in china nurses perceived "preventing pulling out the feeding tubes" as the main purpose for using physical restraints; its use was higher among agitated patients (m = 4.19), while falling out of bed mean was only 2.95 [3].

ICU unit nurses in this study perceived "prevent patients removing dressing" and "protecting from falling out of bed" (m = 4.30) as the most important rational for using physical restraints compatible with the results of general wards in this study. ICU nurses in another studies perceived another rationales. In china the most important reason was to prevent accidental extubation and higher used to manage agitation (m = 4. 53) followed by "prevent pulling out an endotracheal tube" (m = 4.32) [4]. Canadian ICU nurses at two ICUs reported that 43% out of 141 patients were restrained to prevent agitation, 17% because of restlessness, and 17% as a precautionary measure. In contrast alternative methods prior restraints were used with only 33% of the patients [16] [17].

Preventing taking from others was perceived as least important (m = 3.32); it

was also one of the least important purposes perceived by nurses in Spain (m = 2.20) [10].

5. Recommendation and Implication

The difference in mean between Saudi and Palestine hospitals need more studies to explain the factors affect total score of PRUQ. Nurses needs to be more aware of the importance of assessment and follow up when apply physical restraints.

Acknowledgements

The author's thanks all institutions and participant for their collaboration, the nursing managers for supporting the study and giving permission to meet nurses.

Conflicts of Interest

The authors declared no conflict of interest.

References

[1] Evans, L. and Strumpf, N. (1986) Subjective Experience of Being Restrained. University of Pennsylvania School of Nursing, Philadelphia, PA.

[2] Bleijlevens, H., Wagner, M., Capezuti, E. and Hamers, J. (2012) A Delphi Consensus Study to Determine an Internationally Accepted Definition on Physical Restraints. *Gerontologist*, **52**, 136.

[3] Kandeel, A. and Attia, K. (2013) Physical Restraints Practice in Adult Intensive Care Units in Egypt. *Nursing & Health Sciences*, **15**, 79-85.
https://doi.org/10.1111/nhs.12000

[4] Jiang, H., Li, C., Gu, Y. and He, Y. (2015) Nurses' Perceptions and Practice of Physical Restraint in China. *Nursing Ethics*, **22**, 652-660.
https://doi.org/10.1177/0969733014557118

[5] Koolen, J. (2015) The Association between the Prevalence and Attitude regarding Physical Restraint Use in a Dutch Acute Hospital. Master's Thesis, Utrecht University Repository, Utrecht.

[6] Centers for Medicare and Medicaid Services (2008) 7500 Security Boulevard, Baltimore, MD 21244, US.

[7] Taha, M. and Ali, H. (2013) Physical Restraints in Critical Care Units: Impact of a Training Program on Nurses' Knowledge and Practice and on Patients' Outcomes. *Journal of Nursing and Care*, **2**, 2167-1168.

[8] Perren, A., Corbella, D., Iapichino, E., Di Bernardo, V., Leonardi, A., Di Nicolantonio, R. and Malacrida, R. (2015) Physical Restraint in the ICU: Does It Prevent Device Removal? *Minerva Anestesiologica*, **81**, 1086-1095.

[9] Tolson, D. and Morley, J. (2012) Physical Restraints: Abusive and Harmful. *Journal of the American Medical Directors Association*.
https://doi.org/10.1016/j.jamda.2012.02.004

[10] Fariña-López, E., Estévez-Guerra, J., Gandoy-Crego, M., Polo-Luque, M., Gómez-Cantorna, C. and Capezuti, E.A. (2014) Perception of Spanish Nursing Staff on the Use of Physical Restraints. *Journal of Nursing Scholarship*, **46**, 322-330.
https://doi.org/10.1111/jnu.12087

[11] Saarnio, R. and Isola, A. (2010) Nursing Staff Perceptions of the Use of Physical Re-

straint in Institutional Care of Older People in Finland. *Journal of Clinical Nursing*, **19**, 3197-3207. https://doi.org/10.1111/j.1365-2702.2010.03232.x

[12] Eskandari, F., Abdullah, L. and Wong, P. (2017) Use of Physical Restraint: Nurses' Knowledge, Attitude, Intention and Practice and Influencing Factors. *Journal of Clinical Nursing*. https://doi.org/10.1111/jocn.13778

[13] Abdeljawad, R. and Mrayyan, T. (2016) The Use of Physical Restraint: An Argumentative Essay. *European Scientific Journal*, **12**. https://doi.org/10.19044/esj.2016.v12n9p433

[14] Berzlanovich, M., Schöpfer, J. and Keil, W. (2012) Deaths Due to Physical Restraint. *Deutsches Ärzteblatt International*, **109**, 27-32. https://doi.org/10.3238/arztebl.2012.0027

[15] Huang, C., Huang, T., Lin, C. and Kuo, F. (2014) Risk Factors Associated with Physical Restraints in Residential Aged Care Facilities: A Community-Based Epidemiological Survey in Taiwan. *Journal of Advanced Nursing*, **70**, 130-143. https://doi.org/10.1111/jan.12176

[16] Luk, E., Burry, L., Rezaie, S., Mehta, S. and Rose, L. (2015) Critical Care Nurses' Decisions regarding Physical Restraints in Two Canadian ICUs: A Prospective Observational Study. *Canadian Journal of Critical Care Nursing*, **26**.

[17] Luk, E., Sneyers, B., Rose, L., Perreault, M.M., Williamson, D.R., Mehta, S., *et al.* (2014) Predictors of Physical Restraint Use in Canadian Intensive Care Units. *Critical Care*, **18**, R46. https://doi.org/10.1186/cc13789